

MEMORANDUM

To: President and Fellows of Harvard College
Cc: Alan Garber, Bharat Anand
From: George Q. Daley, Dean of the Faculty of Medicine
Re: Request for extension of residency requirement waiver for HMS master's programs cohort entering AY23
Date: August 27, 2021

The HMS Master's programs have steadily grown since their launch in Fall 2012. The first two master's degrees formally launched at Harvard Medical School (HMS) in the Fall of 2012. Together, those two programs enrolled 33 students in their inaugural year. In the Fall of 2020, the now eight master's programs enrolled 196 new students and there were a total of 309 new and continuing students across the eight programs. This year, we had our ninth program approved and the Master of Science in Media Medicine and Health will enroll its first cohort of students in the Fall of 2022.

For the Fall 2021, we are expecting 461 master's students and much of this growth is the result of the flexible offerings of our programs, which include part-time and remote options. These flexible educational opportunities are particularly attractive to outstanding mid-career professionals who appreciate the ability to integrate academic excellence while maintaining their personal and career lives. We are working towards a proposal for a cadre of fully remote Master's programs, but would like to continue to pilot this approach to further develop, iterate and advance the programs. We are therefore requesting an extension of the residency requirement waiver, which is currently in place for students entering in the Fall 2021, for the fall of 2022. We also request that all Master's students entering in the fall of 2022 be permitted to complete their program remotely. (See below for proposed texts for the votes.) In parallel, we will work with the Provost's Office over the next year to seek formal approval for our remote program offerings. Formally approving these remote programs will allow us to compete with many of our peer institutions who have been offering remote programs for some time.

Growth in the Master's programs is a significant academic priority for the HMS. With biomedicine becoming increasingly specialized, many practitioners need additional training to advance their careers, and learning from the experts across HMS provides this opportunity. The extensive expertise in research and clinical science at HMS positions us to offer this training to students around the world. In addition, Master's education is also a way to train diverse post-baccalaureate students so they can go on to competitive PhD and MD training programs at HMS or peer institutions, or can find immediate positions as research scientists. Master's students contribute significantly to the research enterprise at HMS. Master's programs also bring significant revenue to HMS. For FY21, we are projecting a net revenue of about \$6.4 million for HMS from the master's programs.

While the programs have been steadily growing in number and enrollment, we have seen unprecedented growth from offering them remotely during the pandemic. In March 2020, the COVID-19 pandemic required us to move all of our master's programs online. The transition to remote offerings resulted in a dramatic increase of accessibility to the master's degree programs for learners around the world. We had projected a growth in first year enrollment of about 10% between AY20 and AY21, however the first year enrollment in our programs actually grew by about 20% and our application numbers increased by about 40% for Fall 2020 enrollment into our remote master's programs. Moreover, the quality of the applicants was exceptional. Our target student population of international early and mid-stage professionals are established in their lives and careers; the opportunity to grow professionally and academically through our master's program while physically remaining in their local communities is very appealing.

The experience of running the programs online also gave us the confidence that we could offer the Harvard quality education in this new format. We have developed expertise in teaching, course design, assessment, mentoring, and student community building necessary to offer Harvard-caliber on line programs. Our faculty have developed, and shared among the faculty across the master's programs, a framework for adapting courses from residential to online offerings. The "7-step approach for course migration to online learning" (2020 Monograph, Campos-Zamora et al. – see appendix for more information) uses evidence-based education principles to provide a practical and robust model for building remote courses. Our students have expressed enthusiasm for the learning model and delivery of content. In response to the question on our annual program evaluation conducted this year, "Overall, how effective did you find this program to be in achieving your learning needs and goals", the average score across our programs was a 4.2 out of 5. This score was reflective of a year of only remote learning. Additionally, we have provided community through new online social events, professional development activities, and the activities of the master's student council, which hosted online socials and forums. While we had encouraged the formation of this student council before the pandemic, the students took this on wholeheartedly this past year and saw active engagement from students across the programs. On May 27, 2021, our largest class yet of 144 master's students graduated. Almost all of these students began in Fall 2019 or Fall 2020, so they all participated in remote instruction and many were exclusively remote learners. These graduates met all of the same standards for graduation as students in our residential programs. We are still gathering and analyzing course and program evaluation data, but the student feedback on our remote offerings has been overwhelmingly positive.

As we look ahead to the Fall of 2021, three of our programs are running in person, three are being offered remotely, and one program is offering both a residential and a remote program offering.

The programs that are running remotely include the Master of Healthcare Quality and Safety (MHQS), the Master in Clinical Service Operations (MCSO), the Master of Bioethics (MBE – being offered both remotely and residentially) and the Master of Medical Sciences in Medical Education (MMSC MED ED). MHQS, MCSO, and MBE are all one-year programs which culminate with a capstone research project. These students don't need to be on campus to participate in research. Students either participate in local research projects in their home institution, but with the direct oversight of an HMS mentor with subject-matter expertise, or they collaborate with an HMS mentor on data collection and analysis that can take place virtually. The MMSC MED ED program allowed students to be in the field to conduct their research, and during the pandemic they have optimized their co-mentoring plans so that students have both the oversight of a Harvard University faculty mentor, and also a local mentor to support their research. These programs are well-suited to remote instruction. Please see appendix 1 for a thorough description of the MHQS and MCSO remote programs. We already have 228 new first year students enrolled in Master's programs overall (20% more students than we anticipated in our FY22 budget submission), and about 40% of these students are enrolled in remote programs. These numbers could still increase, as many of our programs are currently finalizing their admissions.

There is a large community of learners for whom our programs are only accessible if they are offered remotely. Our application data support this. For example, in the MHQS program, in May 2019, there were 286 applicants to the residential program. In May 2020, when we had already announced that our programs would run remotely, there were 462 applicants to the remote MHQS program. And after a successful year offering the remote program, in May 2021, there were 923 applicants to the remote program. Many candidates for admission commented that they had been waiting for the program to be offered remotely before they applied. We have a residency waiver in place for the cohort of students entering in the fall of 2021. So as to not lose momentum in the marketing and optimization of these remote programs, we request a waiver of the residency requirement for the cohort of students entering in the Fall 2022. In parallel, we will work with the university over the next year to seek formal approval for the MBE, MHQS, MCSO, and MMSc MED ED programs to offer remote degrees.

Growth in enrollment and program offerings across the HMS Master's is an opportunity for us to bring the HMS and Harvard University educational experience to learners around the world. These learners are looking for flexible options that allow them to learn from anywhere, but also to capitalize on all that Harvard University has to offer. We feel confident that we can deliver on this promise and in doing so, also bring significant new revenue to HMS. However, this will require that we continue to be able to offer our programs remotely and without interruption.

Proposed Votes

Therefore, on behalf of the Faculty of Medicine we propose that the Corporation vote as follows.

Voted, on the recommendation of the Provost and the Vice Provost for Advances in Learning, to approve a request by the Faculty of Medicine to waive the standard one-year minimum residency requirement for the Master of Medical Science degree programs, the Master of Bioethics degree program, the Master in Clinical Service Operations degree program, and the Master of Healthcare Quality and Safety degree program for the cohorts matriculating in Fall 2022. Students in these cohorts are moreover permitted to complete their program remotely, over multiple years, during the academic years 2022-2023, 2023-2024, and 2024-2025. This constitutes an exception to the standard one-year minimum residency requirement for degree programs stated in the University's Residency Guidelines, in view of the continuing impact of the COVID-19 pandemic.

APPENDIX 1:
Concept Note
PGME's Transition to Remote MHQS and MCSO

Background

The Harvard Medical School (HMS) Master of Healthcare Quality and Safety degree was proposed and approved in 2018 to train clinicians in operational quality and safety in healthcare organizations. The HMS Master in Clinical Service Operations (MCSO) was approved in 2019 to train providers to become leaders in clinical operations settings, at the point where research and innovation is integrated into healthcare organizations. The goal for both programs remains to accelerate graduates' career advancement by providing them with the necessary knowledge and skills to excel as leaders in their field, while building their capacity to coordinate multidisciplinary high-performing teams working together to deliver quality care.

In May 2021, both programs (MHQS and MCSO) will successfully graduate their first classes with a completion of 36 credits through remote course instruction, including a healthcare organization-based capstone. This concept note describes the process by which MHQS and MCSO migrated to an emergency remote teaching modality due to COVID impact and outlines why we believe that these programs should transition to the remote delivery permanently.

Rationale for moving online

Based on our experience, feedback from students, and assessment of the postgraduate audience, we are advancing **three important principles** that support this request. **First**, there is great demand for distance learning from health professionals interested in advancing their career in quality, safety, and service operations; especially those who wish to remain engaged with their employed positions. This insight surfaced via marketing and recruitment efforts. Since moving to remote delivery, our applications have more than doubled and as a result our early selection process is showing a larger number of highly qualified candidates (Appendix I – Enrollment data). It is also worth noting that many of the existing master's degrees in quality and safety and service operations across the country are either fully online or use a hybrid model. **Second**, based on the success of remote learning this year, we are confident that we can now offer an online learning experience that is equal in quality and content to in-person education. **Third**, the MHQS and MCSO programs are already approved to be run in an online format in 2021-22. Because the longitudinal didactic teaching in the programs would run virtually for all students, by continuing to offer our program remotely, we would be able to offer the same courses to both part time and full-time students next year without further increasing faculty workload or complexity of course administration for the Medical School. We aim to continue to provide close oversight of enrolled students, and to maintain connections with lead researchers and operational experts in selected fields at Harvard Medical School.

COVID-19 Pivot to Remote Learning

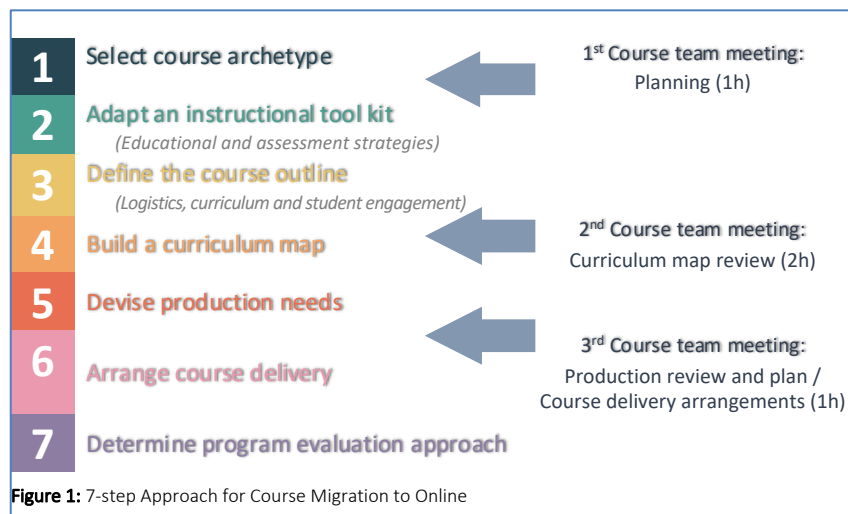
Since the onset of the COVID-19 crisis, there have been several unprecedented developments affecting members of the HMS community and beyond. With respect to current and prospective learners, HMS changed to remote learning methods from March 23rd, 2020. In May 2020, Dean Daley announced that all HMS Fall semester courses in 2020 would be remote and subsequently that the Spring 2021 courses would also be remote. The Postgraduate Medical Education team quickly and efficiently needed to optimize the MHQS and MCSO programs for remote delivery. This pivot to online included program both for courses and the mentored research (capstone projects).

We developed a framework for the course migration process. Applying evidence-based education principles, the "7-step approach for course migration to online learning" (2020 Monograph, Campos-Zamora et al.)

aims to facilitate the work of program and course directors in the new environment and promote a robust and rigorous distance-learning model for all our courses through a practical framework. Early in the COVID-19 pandemic, the 7-step guide and worksheets were distributed to all course directors in MHQS and MCSO. During the migration, multiple meetings were conducted with each course director to support the process, ensuring an appropriate integration was made between the instructional choices at each step and the specific course objectives. Further, our team developed an updated model for the Capstone experience strengthening the students' skills by working with key stakeholders at their home institutions with guidance provided by HMS faculty.

Curriculum migration to online

The "7-step approach for course migration to online learning" model (Figure 1) relies on high-level collaborative teamwork between multiple stakeholders and recognizes that each course is different and may require an individualized approach. Taking advantage of the macro-level vision of the program directors, the deep subject and teaching expertise of the course directors, the efficiency of course managers and the readiness of teaching assistants, the model includes **seven basic steps** that are interwoven with a series of team meetings to cross-check goals, progress, and future directions. The seven steps are interconnected, with progress monitored through an iterative process of revision by course directors and the MHQS and MCSO teams.



The virtual teaching environment offers a wide variety of technology platforms and educational support tools, which have the potential to be overwhelming. Our step-based approach enabled course directors to make informed choices to meet their needs by suggesting an array of strategies according to the course archetype. The **first** step involved deciding which archetype the course was most aligned with (from five basic course archetypes). Many of the MHQS and MCSO courses fell under the analytical "seminar", and "case-based" archetypes in addition to the foundational "knowledge-based" courses. The **second** step included selection of a curated list of educational and assessment resources (i.e., developing a personalized toolkit) for the course. The **third** step was to carefully consider and define all the logistical pieces required for successful course delivery. In step **four**, the creation of a remote-learning curriculum map helped to provide a solid platform to connect course goals and content level learning objectives with the educational and assessment strategies previously selected. For this step, the educational content was analyzed and then divided and mapped to asynchronous and synchronous modalities of teaching. Synchronous and asynchronous teaching methods were both employed to promote active learning throughout all courses. In addition to interactive activities and discussions we were able to adapt case-based instruction, simulation, team exercises and gamification into the online space. The **fifth** step translated teaching techniques to

production needs, with project management planning to ensure sustainability of the process. Specific course delivery strategies were determined for the **sixth** step. Finally, the **seventh** step was to develop a robust program evaluation plan to understand how the migration process impacted the course.

Creating asynchronous teaching materials for 24 courses (MHQS 5 Fall and 6 Spring, and MCSO 5 Fall and 8 Spring) with little advance warning was challenging. The PGME staff partnered with OEE's Educational Technology, Media, and Design team to create a streamlined operational process that began with the faculty learning objectives and concluded with prerecorded sessions in place for students across multiple courses simultaneously. This process was refined and continued for the January and Spring terms, 2021. To date, this process has yielded 48 MHQS and 40 MCSO individual videos that are hosted on the Canvas learning management system. These videos have been reviewed by students in an asynchronous fashion prior to the associated synchronous sessions. These are all available for use as appropriate for 2022 and beyond.

Throughout these programs, we remain committed to fostering a learning environment that supports a diversity of thoughts, perspectives and experiences, and honors student identities (including race, gender, class, sexuality, religion, ability, etc.). We were also able to incorporate a global perspective through discussions with students on their home health systems. We encourage unconditional respect for others and offered multiple ways of communication (office hours, Canvas messages, emails, before/after sessions conversations) to allow for students to communicate if their performance was being impacted by external factors. Further, support from HMS Information Technology department was available to students to solve any technological issues that may have affected their learning. Multiple strategies were used to promote inclusive teaching across all our courses. For example, all videos were closed captioned; all asynchronous course related activities and materials were posted to the learning management system and available on a 24/7 basis; the Canvas sites were designed considering an appropriate balance of cognitive load (by minimizing extraneous cognitive load and allowing learners to focus on the course content), and an ensuring an inclusive design (to accommodate the needs and abilities of each learner). In addition, all synchronous activities were held in early morning Boston time, to be convenient to as many students around the world as possible. Finally, additional support from the program team and from the Medical School was offered to the students who were impacted by the pandemic. These students remain actively enrolled in classes and are succeeding.

Forthcoming Remote Teaching

Critical Elements of Design

As we develop a rigorous remote teaching model for our programs, we remain committed to critical elements of educational design including:

- Cutting edge evidence-based curricular content that is the same as the in-residence programming
- Opportunity to work with and learn from HMS faculty
- Offerings that support learner network development
- Comparable quality of in-person and online offerings

Curricular plan

We propose to maintain the framework that we developed and had approved by HMS Graduate Education Master's Governance and Oversight Committee for the 2020-21 academic year for course planning, design, and delivery. With careful consideration of the critical elements for the virtual environment, this approach will continue enhancing our courses. The program objectives will be achieved through synchronous and asynchronous activities and complemented with the mentored capstone experience. Delivery of content will be planned leveraging adult learning principles and active learning strategies. Formative and summative online assessments will be utilized to demonstrate mastery.

With respect to technology, we will continue to use our current structured platforms to deliver and provide feedback in interactive settings online. We have a foundational set of educational media we are using and will now explore other educational technologies to support self-directed learning and reflection, including portfolios and opportunities for simulated decision making.

Credit hours by type of learning activity

In this program, credit hours will reflect time spent in in-person classes, online learning activities (synchronous and asynchronous), and experiential work. A specific grid with the expected distribution of time will be designed in collaboration with the course directors to ensure we achieve the same level of rigor that in-person versions of the course.

Hours needed for 1 course credit	
Synchronous class	10.5
Video	10.5
Online Activity	20
Project Work	30

Course Development and Implementation plan

Courses have been implemented with a satisfactory outcome. According to our Fall 2020 student survey, the majority of the students were satisfied or extremely satisfied with the program and the same number reported their program effectively gave them skills that will support their work back in their home institutions. Further, all our fall and January courses were considered effective in achieving learning needs and goals by the students (according to the Blue program evaluations, Fall 2020 and January 2021). For the next academic year, we will be augmenting our educational quality improvement process to review all course materials before any second implementation to ensure that learning objectives are being met using evidence-based education techniques. For this purpose, we will convene continuous faculty development retreats and we will conduct individual meetings with faculty to assess the course and identify content gaps. We have hired a course designer that will work with a curriculum fellow to partner with faculty to further refine our courses for remote teaching and to make sure we adhere to the best practices in online education. The programs' leadership will provide regular updates to the HMS Master's Oversight Committee.

Home institution experiential components

By delivering MHQS and MCSO through remote learning, each student will complement their learning with experiential activities at their home institution in collaboration with HMS based faculty. Specific curricular adaptations to maintain the quality of experiential learning in the students' home environment will include:

- A requirement that **students log their active participation** in QI and safety structures (MHQS), or clinical operations units (MCSO) within their home institutions.
- An experiential **capstone experience**. The capstone will demonstrate progressive achievement of the key competences required to apply the content learned throughout the program to a concrete issue. Students will submit a set of milestones via Canvas to allow for bidirectional feedback. In the remote iteration of the capstone, a tripartite collaboration between the student, their home institution mentor, and an HMS-based advisor will allow students to complete the experiential part of the program with oversight from HMS-based advisors. Indeed, the MHQS and MCSO programs will obtain formal commitments of collaboration from the home institution. The students will meet periodically throughout the academic year with both their local advisor and the assigned HMS

advisor. These meetings will be aligned with the project milestones and will be tracked by our team.

- Reflection components of courses will specifically require students to apply their skills and knowledge to the home environment.

Maintaining academic rigor of degree in online environment

Several strategies will be used to ensure that quality and rigor are maintained. We utilize external frameworks for standardization of all online elements (including Quality Matters criteria for online learning) in addition to the 7-step process noted above. With external expert input, we will further refine teaching and assessment strategies to ensure that students demonstrate advanced knowledge and skills beyond factual recall. This will include elaboration, synthesis, application of frameworks, and both peer and self-reflection.

The Program Directors will ensure uniformity of coursework and calibrate student expectations. Course delivery will occur in parallel with feedback from current course directors and utilize lessons learned from our year with COVID. Individual online courses will have course directors who will be tracking students through completion and providing timely feedback. Finally, frequent discussions and connections between course directors will be structured to detect and correct any curricular weaknesses (unintentional disagreement, duplication, or omission of content) as students’ progress through the learning plan.

Curriculum Maps

Please see below for proposed program maps for both programs. The content of each individual course will continue to map directly to the curricular content of the original residential program. All courses will be outlined in course proposal to the Medical School. The part time program will be identical with the coursework spread over two years with the capstone occurring in the second year.

MASTER OF HEALTH CARE QUALITY AND SAFETY										
FULL TIME CURRICULUM										
Summer	Fall				Jan	Spring				
JUL/AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	
QUALITY AND SAFETY PATHWAY	HQS 700 Safety Intensive (4cr)*	HQS 701: Quality and Systems(3cr)*			HQS 711 Risk and evidence-based interventions (2cr)*	HQS 702 Applied QI and Safety(4cr)*				
	CI 742 Fundamental Skills for Academic Success (1cr)*	HQS 703: Quantitative Approach to QI (3cr)*				HQS 705 Patient engagement in QIPS (2cr)*				
		HQS 715: Longitudinal Seminar I (1cr)*			CSO708 Integrating New Technology into Health care Delivery (2cr)*					
		HQS 717: Capstone (3cr)*			HQS 716 Longitudinal Seminar II (1cr)*					
		CSO 703: Financial Planning and Management in Healthcare Org. (4cr)			HQS 718: Capstone (3cr)*					
	HQS 000: Introduction to Health Informatics (1cr)			HQS 706: Special topics (1cr)						
CI 740 Leadership and Teamwork(2cr)*										
CLINICAL INFORMATICS PATHWAY	HQS 700 Safety Intensive (4cr)*	HQS 701: Quality and Systems(3cr)*			HQS 711 Risk and evidence-based interventions (2cr)*	HQS 702 Applied QI and Safety(4cr)*				
	CI 742 Fundamental Skills for Academic Success (1cr)*	HQS 703: Quantitative Approach to QI (3cr)*				HQS 705 Patient engagement in QIPS (2cr)*				
		HQS 715: Longitudinal Seminar I (1cr)*			CSO708 Integrating New Technology into Health care Delivery (2cr)*					
		HQS 717: Capstone (3cr)*			HQS 716 Longitudinal Seminar II (1cr)*					
		BMI 720: Clinical Informatics (3cr)			HQS 718: Capstone (3cr)*					
	HQS 000: Practical Topics in Medical Informatics (2cr)									
Elective: HQS 708 Digital Transformation(1)			Elective: HQS 708 Digital Transformation(1)							

* Foundational courses common to all pathways

Figure 2. Master of Healthcare Quality and Safety Curriculum map

MASTER IN CLINICAL SERVICE OPERATIONS										
FULL TIME CURRICULUM										
	Summer	Fall				Jan	Spring			
	JUL/AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
CLINICAL OPERATIONS PATHWAY		CSO 701: Clinical Operations Management and Workflows (4cr)*				CI 740 Leadership and Teamwork (2cr)*	CSO706: Healthcare Service Line Planning and Operations (4cr)*			
		Financial Planning and Management in Health Care Organizations (4cr)*					CSO708: Integrating New Technology into Healthcare Delivery (3cr)*			
		CSO 711A: Seminar Series I (1cr)*				CSO 771: Supply Chain Management (2cr)	CSO711B: Seminar Series I (1cr)*			
		CSO 750A: Capstone and Practicum (3cr)*					CSO750B: Capstone and Practicum (3cr)*			
		CSO 707: Quantitative Science and Clinical Research in Healthcare. Service Operations (3cr)					CSO702: Clinical Service Operations Skillset (3cr)			
					CSO 770: Effective Healthcare Resource Management (2cr)	CSO704: Creating a Learning Organization in Healthcare Settings (2cr)				
INDUSTRY LEADERSHIP PATHWAY		CSO 701: Clinical Operations Management and Workflows (4cr)*				CI 740 Leadership and Teamwork (2cr)*	CSO706: Healthcare Service Line Planning and Operations (4cr)*			
		Financial Planning and Management in Health Care Organizations (4cr)*					CSO708: Integrating New Technology into Healthcare Delivery (3cr)*			
		CSO 711A: Seminar Series I (1cr)*				CSO 771: Supply Chain Management (2cr)	CSO711B: Seminar Series I (1cr)*			
		CSO 750A: Capstone and Practicum (3cr)*					CSO750B: Capstone and Practicum (3cr)*			
		CSO 000: innovation in the context of stakeholder perspectives (4cr)					CSO 000: Healthcare Industry Leadership Skillsets (4cr)			
					CSO 000: Value Based Healthcare and Pop Management (2cr)					
EXECUTIVE LEADERSHIP PATHWAY		CSO 701: Clinical Operations Management and Workflows (4cr)*				CI 740 Leadership and Teamwork (2cr)*	CSO706: Healthcare Service Line Planning and Operations (4cr)*			
		Financial Planning and Management in Health Care Organizations (4cr)*					CSO708: Integrating New Technology into Healthcare Delivery (3cr)*			
		CSO 711A: Seminar Series I (1cr)*				CSO 770: Effective Healthcare Resource Management (2cr)	CSO711B: Seminar Series I (1cr)*			
		CSO 750A: Capstone and Practicum (3cr)*					CSO750B: Capstone and Practicum (3cr)*			
		CSO 000: Core Executive Leadership Topics (4cr)					CSO 000: C-Suite and Healthcare Executive Leadership Skillsets (4cr)			
					CSO 000: Value Based Healthcare and Pop Management (2cr)					

* Foundational courses common to all pathways

Figure 3. Master in Clinical Service Operations Curriculum map

Appendix I: Enrollment Data

Summary (as of 4/30/21)

Current recruiting cycle has seen increased activity year-over-year across all 3 PGME master's. The MHQS and MCSO that is cited below (the **MMSCI master's also demonstrates robust growth: 2021 application starts +202 (+50%) and completed apps +13 (+30%)**)

At end of **April 2020**

- 1038 application starts
- 98 completed apps

At end of **April 2021**

- 1950 application starts (+912 app starts / +88%)
- 193 completed apps (+95 completed apps / +97%)

MHQS 2021

- Application starts +511 (+130%)
- Completed apps +41 (+150%)

MCSO 2021

